REMARKS

Applicants thank the Examiner for the thorough examination given the present application.

Status of the Claims

Claims 1-10 and 12-16 are pending in the above-identified application. Claims 1 and 10 have been amended. Support for the recitations in claims 1 and 10 can be found in the present specification, *inter alia*, at pages 8-9 and 13. Thus, no new matter has been added.

Applicants submit that the present Amendment reduces the number of issues under consideration and places the case in condition for allowance. Alternatively, entry of the present amendment is proper to place the claims in better form for appeal.

In view of the following remarks, Applicants respectfully request that the Examiner withdraw all rejections and allow the currently pending claims.

Issues under 35 U.S.C. § 103(a)

1) The Examiner has rejected claims 1-6 and 8-9 under 35 U.S.C. § 103(a) as being unpatentable over Mizumoto et al. '263 (US 4,631,263).

2) The Examiner has rejected claim 7 under 35 U.S.C. § 103(a) as being unpatentable over Mizumoto et al. '263 in view of Nishino et al. '355 (JP 55-149355).

3) The Examiner has rejected claims 10 and 12-16 under 35 U.S.C. § 103(a) as being unpatentable over Yokota et al. '063 (US 4,625,063) in view of Mizumoto et al. '263.

Applicants respectfully traverse. Reconsideration and withdrawal of the rejections are respectfully requested based on the following considerations.

Legal Standard for Determining Prima Facie Obviousness

MPEP 2141 sets forth the guidelines in determining obviousness. First, the Examiner has to take into account the factual inquiries set forth in *Graham v. John Deere*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), which has provided the controlling framework for an obviousness analysis. The four *Graham* factors are:

(a) determining the scope and content of the prior art;

(b) ascertaining the differences between the prior art and the claims in issue;

(c) resolving the level of ordinary skill in the pertinent art; and

(d) evaluating any evidence of secondary considerations.

Graham v. John Deere, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966).

Second, the Examiner has to provide some rationale for determining obviousness. MPEP 2143 sets forth some rationales that were established in the recent decision of *KSR International Co. v Teleflex Inc.*, 82 USPQ2d 1385 (U.S. 2007). Exemplary rationales that may support a conclusion of obviousness include:

(a) combining prior art elements according to known methods to yield predictable results;

(b) simple substitution of one known element for another to obtain predictable results;

(c) use of known technique to improve similar devices (methods, or products) in the same way;

(d) applying a known technique to a known device (method, or product) ready for improvement to yield predictable results;

(e) "obvious to try" – choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success

(f) known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations are predictable to one of ordinary skill in the art;

(g) some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention.

As the MPEP directs, all claim limitations must be considered in view of the cited prior art in order to establish a *prima facie* case of obviousness. *See* MPEP 2143.03.

Distinctions over the Cited References

An amination reaction proceeds in the catalytic layer of the film-type catalyst of the present invention **as evidenced by the comparison of Examples 4 and 5**, generating more by-products with a thicker catalyst (see Table 2 on page 43 of the present specification). Specifically, both film-type catalysts D and E comprise the same members such as Cu-Ni-Ru ternary element powdery catalyst as the catalyst active substance and about 50 parts by weight of non-volatiles of phenol resin to powdery catalyst (100 parts by weight) as the binder. However, they are different in thickness (14.5 μm and 6.2 μm, respectively). The results of the reaction for producing N-dodecyl-N,N-dimethylamine using film-type catalysts D and E show that D produces more N,N-didodecyl-N-methylamine, a by-product, than E. Thus, the amination reaction proceeds in the catalytic layer of the film-type catalyst, and a better selectivity to the desired product can be obtained in a thinner catalytic layer. If the reaction proceeded only on the surface of the film-type catalyst as on the surface of the catalyst assembly of Mizumoto et al. '263, the thickness of the film-type catalyst would not influence the reactivity.

This phenomenon is illustrated by comparing Example 1 and Comparative Example 1 (see Table 1 on page 42 of the present specification). The difference in the way the catalysts are prepared (which creates a difference in their internal structures) and the difference in thickness of the catalysts lead to very different results for the amination reaction. The film-type catalyst of Example 1 generates 95% of the desired amine with only 4% of undesired amine in five hours. In contrast, the pellet-type catalyst of Comparative Example 1, which has almost thirty times as much in weight as the film-type catalyst of Example 1, generates only 60% of the desired amine with 5% of the undesired amine. **As such, the film-type catalyst of the present invention can utilize the whole of the catalyst and simultaneously suppress the excessive reaction of the intermediate reaction product in the inside of the catalyst.**

This phenomenon is totally different from Mizumoto et al. '263. In fact, Mizumoto et al. '263 only disclose that gas/liquid reactions in the presence of a water-repellent catalyst proceed through formation of three-phase interfaces on the surfaces of the catalyst and that the inside of the catalyst is never or scarcely used as sites for the reaction (col. 2, lines 34-38). Mizumoto et al. '263 also disclose that a reduction in thickness of the supported layer is

accompanied by a decrease in the amount of the active component and produces an effect of saving materials, shortening catalyst preparation time or the like (col. 3, lines 39-43).

As amended, independent claims 1 and 10 recite that "the diffusion rate in the catalyst layer is increased, and the mass transfer between the inside and outside of the catalyst can be promoted thereby utilizing the whole of the catalyst and simultaneously suppressing the excessive reaction of the intermediate reaction product in the inside of the catalyst." This limitation explains why the reactivity features of the film-type catalyst can be accomplished by its structural features. The unexpected advantages of this limitation are explained and supported by the examples noted above.

As stated in *KSR International Co. v Teleflex Inc.*, 82 USPQ2d 1385, 1396 (2007), "rejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." Furthermore, the mere fact that references ***can*** be combined or modified does not render the resultant combination obvious unless the results would have been predictable to one of ordinary skill in the art. *Id.* As described above, Applicants have shown that the present invention achieves unexpected and unpredictable results.

As discussed above, Mizumoto et al. '263 do not disclose each and every aspect of claims 1 and 10, from which all other claims ultimately depend. Applicants respectfully submit that Nishino et al. '355 and Yokota et al. '063 do not overcome the deficiencies of this reference.

To establish a *prima facie* case of obviousness of a claimed invention, all of the claim limitations must be disclosed by the cited references. As discussed above, the cited references fail to disclose all of the claim limitations of independent claims 1 and 10, and those claims dependent thereon. Accordingly, the combination of references does not render the present invention obvious.

Furthermore, the cited references or the knowledge in the art provide no reason or rationale that would allow one of ordinary skill in the art to arrive at the present invention as claimed. Therefore, a *prima facie* case of obviousness has not been established, and withdrawal of the outstanding rejection is respectfully requested. Any contentions of the USPTO to the contrary must be reconsidered at present.

CONCLUSION

A full and complete response has been made to all issues as cited in the Office Action. Applicants have taken substantial steps in efforts to advance prosecution of the present application. Thus, Applicants respectfully request that a timely Notice of Allowance issue for the present case clearly indicating that each of claims 1-10 and 12-16 are allowed and patentable under the provisions of title 35 of the United States Code.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Chad M. Rink, Reg. No. 58,258 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

By _____

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